WHAT IS CLAIMED IS:

1. A method for fixing or processing a sample or a tissue comprising exposing said sample or said tissue to ultrasound of a frequency of at least 100 KHz wherein said ultrasound is produced by an ultrasound transducer.

2. The method ~~of claim 1~~ wherein only a single piece of said sample or said tissue is placed into said transducer.

3. The method of claim 1 wherein said frequency is in the range of 100 KHz to 50 MHz and wherein said frequency is a single frequency or a wideband frequency.

4. The method of claim 1 wherein two or more ultrasound transducers are used to produce ultrasound.

5. The method of ~~claim 1~~ wherein one or more ultrasound transducers are used to produce an ultrasound field such that at least a portion of said sample or tissue receives ultrasound of a uniform frequency and a uniform intensity.

6. The method of claim 1 wherein said transducer comprises only one head.

7. The method of claim 6 wherein said head is capable of emitting a wideband frequency.

8. The method of claim 6 wherein said head is capable of emitting a single frequency or a wideband frequency.

9. The method of claim 1 wherein said transducer comprises multiple heads.

10. The method of claim 9 wherein one or more of said multiple heads are capable of emitting a wideband frequency.

11. The method of claim 9 wherein one head on a single transducer produces a frequency different from a frequency produced by a second head on said single transducer.

12. The method of claim 9 wherein one head on a single transducer produces a range of frequencies and a range of intensities different from a range of frequencies and a range of intensities produced by a second head on said single transducer.

13. The method of claim 4 wherein each of said transducers produces an ultrasound frequency different from an ultrasound frequency produced by at least one other transducer.

14. The method of ~~claim 4~~ wherein each of said transducers produces a range of ultrasound frequencies and a range of ultrasound intensities different from a range of ultrasound frequencies and a range of ultrasound intensities produced by at least one other transducer.

15. The method of claim 13 wherein a range of frequencies is applied to said sample or said tissue.

16. The method of claim ~~4~~ wherein said transducers are arranged around said sample or said tissue in a two-dimensional arrangement.

17. The method of claim 4 wherein said transducers are arranged around said sample or said tissue in a three-dimensional arrangement.

18. The method of claim 1 wherein said sample or said tissue is rotated.

19. The method of claim 1 wherein said transducer revolves around said sample or said tissue.

20. The method of claim 1 wherein said ultrasound is produced as a continuous signal.

21. The method of claim 20 wherein said ultrasound is a single frequency in the range of 0.1-50 MHz.

22. The method of claim 20 wherein said ultrasound is a wideband frequency in the range of 0.1-50 MHz.

23. The method of claim 1 wherein said ultrasound is produced in pulses.

24. The method of claim 23 wherein said ultrasound is a single frequency in the range of 0.1-50 MHz.

25. The method of claim 23 wherein said ultrasound is produced as a wideband frequency in the range of 0.1-50 MHz.

26. The method of claim 23 wherein said pulses vary in frequency in the range of 0.1-50 MHz.

27. The method of claim 23 wherein said pulses vary in intensity.

28. The method of claim 23 wherein said ultrasound is produced as a continuous signal.

29. The method of claim 28 wherein over time said signal varies in frequency in the range of 0.1-50 MHz.

30. The method of claim 28 wherein over time said signal varies in intensity.

31. The method of claim 1 wherein said sample or said tissue receives ultrasound of a power of at least 5 W/cm^2.

32. The method of claim 1 wherein said sample or said tissue receives ultrasound with a power in the range of 5-150 W/cm^2.

33. The method of claim 1 further comprising using one or more sensors to detect one or more parameters of reflected ultrasound wherein said parameters are selected from the group consisting of intensity and frequency.

34. The method of claim 33 wherein more than one type of sensor is used.

35. The method of claim 34 comprising an ultrasound sensor and a sensor to measure temperature.

36. The method of claim 33 further comprising a central processing unit to monitor the sensor readings.

37. The method of claim 36 wherein said central processing unit controls said ultrasound generator.

38. A method of performing a) immunohistochemistry, in situ hybridization or fluorescent in situ hybridization on a solid phase or b) a Southern hybridization, a Northern hybridization, a Western annealing or an ELISA wherein said method comprises using ultrasound at a frequency of at least 100 KHz.

39. The method of claim 38 wherein said solid phase is a tissue section, tissue microarray, or a chip.

40. The method of claim 38 wherein said Southern hybridization, Northern hybridization, Western annealing or ELISA is performed on a membrane, a microarray or a DNA chip.

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41. The method of claim 38 wherein said tissue section or said membrane receives ultrasound power of at least 0.01 W/cm^2.

42. The method of claim 38 wherein said ultrasound has a power in a range of 0.01-100 W/cm^2.

43. The method of claim 38 wherein said frequency is in the range of 100 KHz to 50 MHz.

44. The method of claim 38 wherein two or more ultrasound transducers are used to produce ultrasound.

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45. The method of claim 38 wherein one or more ultrasound transducers are used to produce an ultrasound field that allows at least a portion of said sample to receive a uniform frequency and intensity of ultrasound.

46. The method of claim 38 wherein said ultrasound is produced by a transducer comprising one or more heads.

47. The method of claim 46 wherein one or more of said heads are capable of emitting a wideband frequency.

48. The method of claim 46 wherein one or more of said heads are capable of emitting a single frequency or a wideband frequency.

49. The method of claim 46 wherein one head on a single transducer produces a frequency different from a frequency produced by a second head on said single transducer.

50. The method of claim 46 wherein one head on a single transducer produces an intensity different from an intensity produced by a second head on said single transducer.

51. The method of claim 44 wherein each of said transducers produces an ultrasound frequency different from an ultrasound frequency produced by at least one other transducer.

52. The method of claim 44 wherein each of said transducers produces an ultrasound intensity different from an ultrasound intensity produced by at least one other transducer.

53. The method of claim 51 wherein a range of frequencies is applied to said sample or said tissue.

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54. The method of claim 44 wherein said transducers are arranged around said sample or said tissue or said membrane in a two-dimensional arrangement.

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55. The method of claim 44 wherein said transducers are arranged around said sample or said tissue or said membrane in a three-dimensional arrangement.

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56. The method of claim 38 wherein said sample or said tissue or said membrane is rotated.

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57. The method of claim 38 wherein said transducer revolves around said sample or said tissue or said membrane.

58. The method of claim 38 wherein said ultrasound is produced as a continuous signal.

59. The method of claim 58 wherein said ultrasound is a single frequency in the range of 0.1-50 MHz.

60. The method of claim 58 wherein said ultrasound is a wideband frequency in the range of 0.1 to 50 MHz.

61. The method of claim 38 wherein said ultrasound is produced in pulses.

62. The method of claim 61 wherein said ultrasound is a single frequency in the range of 0.1-50 MHz.

63. The method of claim 61 wherein said ultrasound is produced as a wideband frequency in the range of 0.1-50 MHz.

64. The method of claim 61 wherein said pulses vary in frequency in the range of 0.1-50 MHz.

65. The method of claim 61 wherein said pulses vary in intensity.

66. The method of claim 61 wherein said ultrasound is produced as a continuous signal.

67 The method of claim 66 wherein over time said signal varies in frequency in the range of 0.1-50 MHz.

68. The method of claim 66 wherein over time said signal varies in intensity.

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69. The method of claim ~~38~~ wherein said sample, said tissue section or said membrane receives ultrasound of a power in the range of 0.01-100 W/cm^2.

70. A system comprising an ultrasound transducer, an ultrasound generator, an ultrasound sensor and a central processing unit.

71. The system of claim 70 comprising more than one sensor.

72. The system of claim 71 comprising more than one type of sensor.

73. The system of claim 71 comprising an ultrasound sensor and an infrared temperature sensor.

74. The system of claim 70 comprising more than one transducer.

75. The system of claim 70 wherein said sensor produces readings which are processed by said central processing unit.

76. The system of claim 70 wherein said ultrasound generator is controlled by said central processing unit.

77. The system of claim 70 wherein said transducer generates ultrasound of a frequency of at least 100 KHz.

78. The system of claim 77 wherein said transducer generates ultrasound of a single frequency or of multiple frequencies in the range 100 KHz to 50 MHz.

79. The system of claim 70 wherein said ultrasound transducer produces ultrasound of a power in the range of 0.01-200 W/cm^2.

80. A robotic system comprising means for moving a sample or tissue and an ultrasound transducer from a first reaction chamber to a second reaction chamber.

81. The robotic system of claim 80 further comprising means for moving one or more sensors from said first reaction chamber to said second reaction chamber.

82. The robotic system of claim 80 wherein said means are controlled by a central processing unit.

83. The robotic system of claim 81 wherein said means are controlled by a central processing unit which processes information from said one or more sensors.

84. A system for processing a sample comprising a reaction chamber, an ultrasound transducer and a central processing unit.

85. The system of claim 84 comprising more than one transducer.

86. The system of claim 84 further comprising one or more sensors.

87. The system of claim 84 further comprising means for heating or cooling said reaction chamber.

88. The system of claim 84 further comprising a pump.

89. The system of claim 84 further comprising a distributor.

90. The system of claim 84 wherein said sample is a tissue sample, a membrane filter, a tissue sample mounted on a slide, a nucleic acid chip, a microarray of nucleic acid, a microarray of tissue, or an immuno chip.

91. The system of claim 84 further comprising means for sampling reaction fluid.